

MULTIPLE WAVELENGTH TDMA OPTICAL NETWORK**Abstract of the Disclosure**

A passive optical network which employs multiple wavelengths to increase overall system bandwidth, with each wavelength being shared by multiple optical network units (ONUs) according to a time division multiple access (TDMA) protocol. The upstream TDMA traffic therefore includes multiple TDMA data streams at different wavelengths. An optical line terminal (OLT) preferably receives the multiple TDMA data streams and separates them to different detectors before ultimately combining all data into a single data stream using a multiplexer after performing clock and data recovery functions. In this manner, the upstream bandwidth in a passive optical network can be markedly increased without requiring an increase in data transmit speeds, and while using low cost/low speed detectors in the OLT, and low cost/low speed transceivers in the ONUs. System bandwidth can be further improved by using higher cost, higher speed components.

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